

REMARKS

Claims 34-43 are pending in the application. With this Amendment, claims 34 and 35 have been amended, claims 36-43 have been canceled, and claims 44-47 have been added to the application. No new matter has been added. Barrier layers are described in the application on at least page 9, line 31 through page 10, line 5. Molybdenum carbide is disclosed on page 11, lines 9-14. Alternating layers of molybdenum and beryllium are described on at least page 2, lines 16-21. Claim 45 is a combination of former claims 40 and 43.

Claim 39 has been rejected under 35 U.S.C. §103(a) as being unpatentable over International Application Publication No. WO 03/081187 (WO '187) in view of U.S. Patent No. 6,449,086 to Singh.

Claims 39 has been canceled and new claim 44 has been presented which is a combination of former claims 36 and 39. The Examiner states that the WO '187 reference discloses a multilayer system comprising two alternating layers, namely Mo and Si but not Mo and Be, a barrier layer arranged between two alternating layers being composed of molybdenum carbide, and a capping layer of silicon nitride. The Examiner further states that the Singh reference discloses a multilayer system comprising alternating layers of Mo and Be or Mo and Si.

However, without the benefit of hindsight, it is not clear to one of ordinary skill in the art that molybdenum carbide acting as a barrier layer between the alternating Mo and Si layers in order to avoid diffusion processes is also appropriate to act as a barrier layer between alternating layers containing Mo and Be, respectively. The element silicon (Si) is a metalloid. In contrast, Beryllium (Be) is an alkaline earth metal having high reduction capability. Therefore, with increased probability, beryllium and carbon can form an intermetallic phase which could impair the durability of the layer system. In spite thereof, the inventors surprisingly found that Mo₂C can be utilized as a barrier layer. Thus, the subject matter set forth in new claim 44 is not simply a straight forward combination of the teaching of the two cited references. Accordingly, it is respectfully submitted that only impermissible hindsight motivation can be utilized to combine the WO '187 and Singh references.

Claims 34-35 have been rejected under 35 U.S.C. §102(b) as being anticipated by Singh. Claims 34-38 have been rejected under 35 U.S.C. §102(a) as being anticipated by WO '187.

It is respectfully submitted that claims 34 and 35 can neither be anticipated, nor taught or suggested by either the Singh or WO '187 reference, alone or in combination. Claims 34 and 35 have been amended to remove the alternative limitation "or wherein the protective layer system comprises at least silicon nitride". It is believed that the remaining alternative presented wherein the protective layer is molybdenum carbide covered by iridium, aluminum oxide covered by iridium, titanium nitride covered by iridium, or titanium dioxide covered by iridium can neither be anticipated, nor taught or suggested by the cited references, as each of the protective layer systems claimed comprises an iridium cover layer which is not disclosed in either of the references. Accordingly, it is respectfully submitted that claims 34 and 35 are in condition for allowance.

Claims 40-42 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Singh. Claim 43 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Accordingly, new claim 45 is presented and includes the features of former claims 40 and 43 and claims 40-43 have been canceled. New claim 45 claims a multilayer system comprising alternating layers of materials with different refractive indices or absorption coefficients and at least one barrier layer between two of the alternating layers, with the barrier layer being a silicon nitride layer. As stated in paragraph 9 of the Office Action, the Examiner states that the closest prior art... does not teach or suggest the combination wherein the barrier layer (former independent claim 40) is a silicon nitride layer. Former dependent claims 41 and 42 are presented as new dependent claims 46 and 47.

Accordingly, it is believed that all the objections have been overcome and the claims are in condition for allowance. Should the Examiner have any questions or concerns regarding this response, a telephone call to the undersigned is greatly appreciated in order to expedite allowance of the application

Respectfully submitted,

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